



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

EXHIBIT 1

Customer Investment Fund Multifamily Housing Energy Efficiency Retrofit Program Guide

Executive Summary

The Department of Housing and Community Development (the “Department”) has developed this Pilot Program to advance the effectiveness of the Energy Conservation Program by providing a unique system to best capture the energy savings potential from multifamily properties. The purpose is to provide an assembled team of Energy Conservation Measure service providers for each project awarded funds while also increasing the knowledge base of the industry participants through real-time workforce development training in classroom and actual jobsite conditions. It is intended to provide a model, consolidated team for building owners to use that reduces the legwork necessary by owners to proceed with Energy Conservation retrofits.

This Customer Investment Fund Multifamily Energy Efficiency Retrofit Program has been established as part of the Maryland Public Service Commission’s Order No 84698, which approved the merger between Exelon Corporation and the Constellation Energy Group for multifamily facilities in the Baltimore Gas & Electric utility service territory to receive Energy Retrofit Services.

The Department will fund the cost for the following areas: **1. Project Management; 2. Energy Audit Quality Control, Inspection; and 3. Training**, service disciplines *through a Request for Proposals (RFP)*. *Offerors may submit only one (1) offer* but may include pricing in one, two, or all three of these disciplines. The Department may award multiple contracts in one, two, or all three of these disciplines to Offerors for each project.

The Department will fund the cost for; **1. *Energy Conservation* and 2. *Renewable Energy Measure Installation*** service disciplines *through a Customer Investment Fund Grant* to each property owner that will be managed by the Project manager procured through the RFP.

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1. Program Intent

- A. Provide a Project Management, single point of contact for the property owner(s) (Grantee) for oversight and implementation of an Energy Conservation Retrofit for their property.
- B. Perform a comprehensive Energy Audit that provides a clear understanding of the current energy and water usage inefficiencies while identifying measures to reduce that consumption.
- C. Furnish and Install the scope of measures identified in the Audit through a coordinated effort by the Project Manager, Auditor, and the Energy Conservation Measure Installer(s) for each project awarded funding.
- D. Increase the knowledge base of the energy efficient program participants through real time workforce development training in classroom and actual job-site conditions.

The Project Management component provides top-tier, professional oversight of the Energy Conservation process and its work that will maximize efficiency while minimizing the management legwork necessary to perform this type of project that would have been required by building owners and their staff (procured through the Department's RFP process).

The Energy Auditing component that this Program provides develops a building Energy Conservation Retrofit system designed and managed by a top-tier, industry professional that holds a current Multifamily Energy Analyst Professional certification and either a Building analyst *or* Envelope Professional certification from the Building Performance Institute (procured through the Department's RFP). *See Section 6.B.*

The Energy Conservation Measure component (not a part of the RFP) will provide Energy Conservation and Renewable Energy Measure installation through a grant to building owners from the Department for the Energy Conservation Measure / Renewable Energy Measure work or services performed by an Energy Conservation Measure Installer(s). Owners are responsible to pay the Energy Conservation Measure Installers through approval of grant funds for inspected and approved installed items, systems, or services. (This component is funded through a Customer Investment Fund Property Owner Grant and *is* to be managed by the Project Management awardee(s) from the RFP). *See Section 6.C.*

The Program's Training component enhances the Energy Conservation industry knowledge base that is growing at a rapid pace. The process will be performed in real time as a workforce development tool for the training of Project Management, Energy Auditors and Quality Control Inspection, and Energy Conservation Measure Installer(s). *See Section 6.F.*



2. Funding

The Program will be funded under the terms of the Baltimore Gas & Electric, Constellation Energy / Exelon Merger as ordered by the Maryland Public Service Commission, for eligible multifamily buildings in the Baltimore Gas & Electric Utility service area.

Multiple projects will be selected to receive consolidated Energy Conservation Retrofit service funding. Total Customer Investment Fund Multifamily Energy efficiency Retrofit Program funding of \$3,700,000 has been established for Energy Conservation Measures, Energy Conservation Audits, and Project Management costs for selected Offerors.

The program shall provide services under two funding components:

A. Funding component one – Grant to Property Owners (Grantee) for Energy Conservation Measures and Renewable Energy Measures.

1. An American Institute of Architects contract (see <http://www.aia.org/contractdocs/about/synopsis/aseries/AIAB095127>) between the property owner and each Energy Conservation Measure Installer shall be developed and submitted by the Project Manager and executed by the Owner and Energy Conservation Measure Installer.
 - a. A guaranteed maximum contract price will be established in each American Institute of Architects contract that reflects the work approved by the owner.
 - b. Grant funds shall be remitted to the Grantee per the funding approval process and they shall expeditiously be forwarded to the Energy Conservation Measure Installer(s) to satisfy the requirements of the American Institute of Architects contract between the Owner (Grantee) and the Energy Conservation Measure Installer.
2. The Grant funds for the Energy Conservation Measures and Renewable Energy Measures *shall* provide a Project Cumulative Savings to Investment Ratio of 1.1 or greater.

B. Funding component two – Procurement process or RFP

1. Project Management; Administration of Energy Conservation and Renewable Energy Measures, including oversight of the Audit, Quality Control; and Training.
2. Energy Audit and Quality Control Inspection.
3. Training.
4. Funds to administer the grant work from Section 2A above will be distributed through contract(s) procured through a RFP and the funds for this program component shall not be counted against the Cumulative Savings to Investment Ratio requirements for the program.
5. Funds to administer the Training; the funds for this program component shall not be counted against the Cumulative Savings to Investment Ratio requirements for the program will also be funded through the RFP.



3. Payment

A. General Invoicing

1. All invoices submitted to the Project Manager for services, whether funded through the RFP contracts or the American Institute of Architects contracts for the grant shall be signed by the submitter. All invoices shall include the following information:
 - a. Contractor name
 - b. Remittance address
 - c. Federal taxpayer identification number (or if sole proprietorship, the individual's social security number)
 - d. Invoice period
 - e. Invoice date
 - f. Invoice number
 - g. State-assigned contract number or grant identification number, as applicable
 - h. Project name
 - i. Goods or services provided, including a detailed listing of quantities, including unit of measure and unit, number or area/ location within the project
 - j. Sub-contractor invoices, including goods or services provided and a detailed listing of quantities, including unit of measure and unit, number or area/ location within the project
 - k. Receipts and/or invoices for all expenditures
 - l. Total amount due

Invoices submitted without the required information shall not be processed for payment until the Contractor provides the required information. All invoices under this RFP must be received by the Department no later than May 15, 2017 or as directed by the department.

B. The Contractor(s) Project Manager shall develop a monthly requisition(s) and invoice identifying:

1. The detailed costs associated with each project for Project Management Services
2. Costs chargeable for energy auditing and modeling and Quality Control
3. Energy Conservation Measure Installer Requisition processing for Grant funds.
4. TTA services:
 - a. Identify the provided training and an attendance record
 - b. Identify the project training occurred at or if classroom training
 - c. Identify certification testing performed and/or proctored
5. Payments will be processed for eligible expenses on a monthly basis
6. Timely submission to the Department is required

C. At the Department's sole discretion, the total amount of compensation under the Contract between the Department and the successful Offeror(s) resulting from the RFP may be increased or decreased by modification to the Contract as follows to ensure the State achieves program goals. Adjustments to a contract may result due to any of the following:

1. The rate of expenditure or production under the Contract
2. The division of work among various Contractors performing this service
3. If a Contractor fails to adequately perform under the Contract
The best interests of the State of Maryland



4. Property Eligibility Requirements

The program shall include multifamily affordable rental housing properties in the Baltimore Gas & Electric utility service area. New construction projects are not eligible. Additional requirements are as follows:

- A. The properties must be located in the Baltimore Gas & Electric utility service area.
- B. Eighty (80) percent of the occupants' (tenants') income must be at or below 60% of the Area Median Income.
 - 1. A minimum, five-year agreement must be in place, extended or enacted agreeing in writing to the above stated income restrictions.
- C. Utility Metering eligibility
 - 1. Master metered (all utilities paid by the property owner through the owner's commercial account)
 - 2. Mixed metered (typically heating and cooling and water utilities paid by the property owner / unit electrical plug receptacle and lighting utilities paid by the tenant)
- D. The building types served
 - 1. Single Room Occupancy (SRO) in shared housing facilities with five (5) or more units
 - 2. Townhouse developments
 - 3. Garden Style Apartments
 - 4. Mid-rise Apartments
 - 5. High-rise Apartments
- E. Projects which meet the property eligibility criteria are eligible for Customer Investment Fund funding for qualified Energy Conservation Measure's as detailed in an acceptable Energy Audit and as follows:
 - 1. One hundred percent (100%) of the cost of qualified Energy Conservation Measures with Savings to Investment Ratio at or above 1.1 may be funded.
 - 2. One hundred percent (100%) of the cost of qualified energy conservation measures with Savings to Investment Ratio below 1.1 that do not bring the Cumulative Savings to Investment Ratio of the project below 1.1 may be funded.
 - 3. Partial funding ("cost sharing") of qualified Energy Conservation Measures with an Savings to Investment Ratio less than 1.1 when Customer Investment Fund funding is leveraged with owner contribution funds to bring the project into Cumulative Savings to Investment Ratio criteria compliance.
 - 4. Energy Conservation Measure installers agree to the Guaranteed Maximum Cost per project established in the Grant. The Department will not issue change orders under the grant except as defined in Section 6.C.B.2.a below.



5. Eligible Services

Provide a comprehensive Energy Conservation Retrofit that addresses Energy Conservation Measures and Renewable Energy Measure systems savings with a minimum cumulative Savings to Investment Ratio of 1.1 for each project for the following reasons:

- A. To save energy and natural resources
 - 1. Electricity
 - 2. Natural gas.
 - 3. Propane
 - 4. Oil / Kerosene
 - 5. Water & Sewage
- B. To provide workforce development training for participants
 - 1. Project Management
 - 2. Energy Conservation retrofit installation and appliances
 - 3. Energy Auditing and modeling
 - 4. Renewable Energy Measure (Systems)
- C. To cover additional items, including, but not limited to:
 - 1. Project Management
 - a. Contract development and management
 - b. Supervision
 - c. Scope development
 - d. Submittal development and review
 - 2. Energy Auditing and Quality Control Inspection
 - 3. Energy Conservation Measures – Renewable Energy Systems
 - 4. Training
 - 5. Monitoring
 - 6. Case studies
 - 7. ENERGY STAR or high efficiency HVAC systems
 - a. Heat pumps-Mini splits-Variable flow Systems
 - b. Fossil fuel furnace, hot water heaters & boilers – Combined Heat and Power
 - c. Cleaning and tuning of equipment
 - d. Commissioning new systems at the first heating or cooling season change
 - e. Solar Energy
 - f. Chillers
 - g. Cooling tower
 - h. Controls
 - i. Motors
 - j. Pumps
 - k. Valves
 - l. mechanical regulator
 - 8. Ventilation systems
 - 9. Duct sealing and insulation



10. Pipe insulation
11. Insulation
12. Windows
13. Air sealing and draft stopping
14. Domestic Water
15. Elevator and their control systems
16. Other energy conservation measures identified in the project energy audit

6. Program Participant's Responsibilities

A. PROJECT MANAGER

Minimum Qualifications

Project Management Services

- Building Performance Institute, Inc., Multifamily Building Analyst Professional certification **and** a Building Analyst *or* Envelope Professional certification **and** three (3) years of experience in developing building energy audits and providing or managing the installation of typical energy conservation measures; ***or***
- Be a licensed architectural or engineering firm with three (3) years of multifamily housing project management experience; ***or***
- Be a general contractor with three (3) years of multifamily housing, project management experience.

The Project Manager(s), procured through the RFP, will work with the owner to provide recommendations for a minimum of 3 qualified Energy Conservation Measure installation contractor options, per discipline when feasible, for selection and contracting by the building owner as well as:

- A. Provide project oversight and coordination services.
- B. Develop American Institute of Architects Energy Conservation Measure Installer contracts in conjunction with the auditor specifying that each Energy Conservation Measure Installer agrees to the Guaranteed Maximum Cost per project established in the Department / Owner Entity Grant Agreement that meets or exceeds the Cumulative Savings to Investment Ratio of 1.1 for the project .
- C. Provide Quality Control Inspection and certification of work completed.
- D. Requisition preparation and certification; submit to the Department three days in advance of the requisition meeting including backup invoice compilation from the work or service performance contractors.
- E. The requisition must include model serial number(s) and/or Energy Conservation Measure name and quantities installed to date including photographic evidence of the Quality Control, due diligence in screening the work for payment request.
- F. Coordinate contractor work, access and work schedules with the owner and the Department.
- G. Monitor in-progress work on site.
- H. Review, approve or deny product submittals.
- I. Review, compile, or establish written specifications and scopes for all project requirements in conjunction with the project Auditor.



- J. Certify the project work and services are in compliance with the project design intent, scope, and specifications in conjunction with the project Auditor's Quality Control.
- K. Oversight of Audit, and when not performed directly by Project Manager- oversee and provide training and guidance and review of the audit. *See "Auditor" below.*
- L. Oversight of Training. *See "Training" below.*
- M. Oversight of educational training of the building maintenance staff on new or upgraded systems.
- N. Coordinate Building common area and apartment access schedule with the owner's on site representatives. *See "Owner's Responsibilities" below.*
- O. Coordinate and attend Bi-monthly progress meetings.
- P. Review requisition for approval. (Second meeting of the month.)
- Q. Review schedule milestones for work in place.
- R. Take meeting minutes and distribute to all appropriate parties.
- S. Schedule follow up work. Identify potential and present problem areas. The Project Manager must report issues to the Department in a timely manner in writing. Provide real time information on progress or problems or changes in key personnel that arise in written email form.
- T. Provide meeting minutes.
- U. Check work for conformance with the program guidelines and product specifications.
- V. The Project Manager in coordination with the Auditor shall provide ongoing guidance on the application of the entire energy efficient retrofit process to provide direction and correction in the event that participants veer from the best practices of their Energy Conservation Measure discipline.
- W. Additional requirements relating to changes are outlined in Section 6.C.B.2.a- that pertain to all Program Participants.

Note: Additional requirements are listed below and in the RFP.

B. ENERGY AUDIT AND QUALITY CONTROL INSPECTION: (AUDITOR)

Minimum Qualifications and Scope

- A. Auditor must possess the following certifications:
 - 1) Building Performance Institute Multifamily Building Analyst Professional, and
 - 2) Building Performance Institute Building Analyst Professional or Envelope Professional.
- B. Audit must be performed in accordance with the following standards:
 - 1) The Building Performance Institute, Inc. Technical Standards for the Multifamily Building Analyst Professional



- 2) The Department Multifamily Energy Audit Guide
http://dhcd.maryland.gov/HousingDevelopment/Documents/MF_Energy_Audit_Guide.pdf
- C. Gather all physical characteristics of the building(s) for projects assigned by the Department to document the size, shape and composition of the existing baseline energy envelope material types including; the existing R- and U- value parameters including usage information; document appliance baseline (clear photos of I.D. plates required) conditions including current efficiency rating or state industry standard documentation used to estimate it.
 - 1) Energy star replacement – Appliances
 - 2) Heating Systems – Air Conditioning Systems
 - a. Boilers
 - b. Chillers
 - c. Heat pumps
 - d. Electric resistance
 - e. PTAC
 - f. SEER, EER, COP, HSPF
 - g. Sealing and Insulation on HVAC distribution systems.
 - h. Controls systems
 - i. Pumps, motors, and elevator controls
 - 3) Unit, Lighting
 - a. Fixed permanent fixtures
 - b. Plug-in lamps
 - 4) Common areas
 - 5) Site lighting
 - 6) Existing controls photo cell motion detectors etc.
 - 7) Note: Include pre and post wattage and quantity per type and number of hours of operation used for calculation purposes. The basis for hours of use is established in the Mid Atlantic TRM, Version 5.
- D. Thermal insulation evaluation and measurement, including the following:
 - 1) Conduction
 - 2) Radiation
 - 3) Convection
- E. Document Water usage and water flow restrictive devices.
- F. Document and evaluate current ventilation rates and efficiencies.
- G. At audit, document existing conditions of the building and its defects that provides clarity for future reference.
- H. Gather and input into the approved energy modeling software chosen all of the required historical utility usage (minimum one (1) year) and current rate. Acquire energy usage consent release forms for a representative portion (minimum five (5) units or 20 % whichever is greater) of individually metered portions of the project from the tenants in mixed metered buildings. Acquire release form from owner on master metered portions.



Separate end-user benefit in the Energy Conservation Measure charts; indicate metering savings benefit, e.g. Owner / Tenant.

- I. If present, document the following information for renewable energy systems:
 - 1) Age
 - 2) Condition
 - 3) Manufacturer
 - 4) Potential upgrades
- J. Provide HUD, utility Benchmarking tool analysis.
http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/phecc/ubenchtool .
- K. Input all of the above into one of the four approved energy modeling software programs (current version).
 - 1) TREAT
 - 2) Rem Rate
 - 3) EA-Quip
 - 4) eQuest
- L. Provide an energy efficient Audit package including the total installed costing parameters and their Savings to Investment Ratio Savings to Investment Ratio potential for all of the proposed upgraded items in a chart which clearly identifies the pre and post condition (I.E. Quantity, Wattage etc.) usage in **annual** KWH- Therms, Gallons Water, Gallons Oil and useful life. This program requires use of Energy Star rated replacement appliances or High efficient HVAC products above minimum code level unit efficiency specifications.
- M. Review, compile, or establish written specifications and scopes for all project requirements in conjunction with the Project Manager.
- N. Provide an “Energy Conservation Measure package design” detailed in the Audit final draft which includes the documentation of the pre retrofit condition, Energy Conservation Measure costs, savings, quantities, specifications and instructions on the implementation and processes to achieve the design intent.
- O. Provide Quality Control Inspection and certification of completion.
- P. A competent “Quality Control” inspection protocol must be implemented to provide documentation (photos and certification signatures required) of the Auditor and Project Manager’s due diligence in screening the work prior to submitting each requisition for payment and at the project close out phase. The Department will perform a separate Quality Assurance Inspection of the work periodically and at the project close out phase. See the Department’s requirements below.
- Q. Provide the property owners with an Operations Manual compiled collectively by the Project Manager, Auditor, and Energy Conservation Measure Installers (each program participant has a responsibility in the development of the operations manual (see disciplines below) including product literature, completed warranty registration, for systems upgraded or replaced, a time schedule for the replacement or cleaning of filters, motor cleaning etc. The Auditor in coordination with the Project Manager shall provide guidance at each Quality Control Inspection on the application of the entire energy efficient retrofit process to provide direction and correction in the event that participants veer from the best practices of their Energy Conservation Measure discipline.
- R. Useful life information must comply with the Department's Expected useful life table or in the absence of a measure listing. Refer questions to the department if further clarification is required.



- S. Additional requirements relating to changes are outlined in Section 6.C.B.2.a- that pertain to all Program Participants.

C. ENERGY CONSERVATION MEASURE INSTALLER

- A. Provide an Energy Conservation Measure “improvement package” and installation of the approved audit items at the accepted proposed values and the American Institute of Architects contract developed by the Project Manager and executed with the owner. This may be facilitated with the Energy Conservation Measure Installer(s) own forces or licensed subcontractors at the Energy Conservation Measure Installer(s) discretion. Qualifications will apply to any subordinate entity or persons.
- B.
 - 1) Each of the Owner / Energy Conservation Measure Installer American Institute of Architect’s contracts must list the “Customer Investment Fund Multifamily Energy efficiency Retrofit Program Guidelines” as well as the Customer Investment Fund RFP as contract documents.
 - 2) The Energy Conservation Measure Installer agrees to the maximum contract value with no recourse for change order except for the following instance:
 - a. In the event that unforeseen conditions are encountered in the course of the work, whether or not cost change is anticipated, all Program Participants agree to notify the Department of the situation, take stock of the progress to date, and work together to facilitate an equitable solution prior to proceeding further with the measure involved. If an equitable solution cannot be reached the parties agree to provide the Department with the costs and associated savings for the effected portion of the work installed to date and its effect on the Cumulative Savings to Investment Ratio of the project as a whole and agree to accept the proportional value of the work installed to date and that no fraction of an Energy Conservation Measure that may affect the building or it’s systems operation may be left undone.
 - 3) It is the responsibility of each Energy Conservation Measure Installer to comply with all applicable State codes and other codes and or requirements for the jurisdictions of each project; this includes applicable OSHA requirements including Confined Space rules effective August 3, 2015.
- C. The Energy Conservation Measure Installer(s) and subcontractors must be licensed home improvement contractors, or hold appropriate “Trade License” in the State of Maryland.
- D. Perform and provide the work or supply the services to the project specifications and industry best practices.
- E. Cure deficient work in a timely manner.
- F. Communicate with other contractors to provide a complete project.
- G. Contractors must submit a demolition and recycling plan for each project. The plan must address recycling and proper disposal methods, including tracking, and verification for all recovered hydro fluorocarbons from HVAC repair or replacement and refrigerator decommissioning statements per unit from an approved reclamation center (all replaced units must be permanently removed from the grid).
- H. Repair contractor damage to the owner’s property at no additional charge to the owner or the Department.
- I. Provide a minimum one (1)-year warranty on labor and materials.
- J. The Energy Conservation Measure Installers shall work in a collaborative effort with all other installer’s auditors and the Project Manager.



D. GRANTEE (PROPERTY OWNER) (OWNER)

- A. Owner agrees to provide a letter of intent to enter into a grant agreement with the Department executed by all of the entity principals at application.
- B. Access:
 - 1) Owner shall provide access to the Contractor and his team to the work areas of the building including:
 - 2) Personnel to accompany and provide access to all work areas for the duration of the project. (Coordination with the contractor on tenant notification requirements).
 - 3) Access must be granted to common area lighting and HVAC systems among other repairs and / or replacements including attic, crawl spaces, and mechanical rooms.
 - 4) Parking and / or staging areas required for proper handling of material on the site must be granted and coordinated with the Project Manager and the Energy Conservation Measure Installer(s) and the Department.
- C. The owner is required to enter into a contract administered by the Project Manager with Energy Conservation Measure Installer(s) trade contractors of the owner's choice as determined through a fair bidding process also administered by the Project Manager.
- D. Owner will make direct and timely (monthly) payments to the Energy Conservation Measure contractors for items approved by the Department at requisition.
- E. Owner agrees to allow the training of the workforce to occur on the property.

Property owners may elect to increase the scope of Energy Conservation Measures by cost sharing on measures to bring them to an acceptable Savings to Investment Ratio. The following is the process by which this may occur:

- F. The audit is presented with an attempt to identify all feasible Energy Conservation Measures
 - 1) The Department reviews and identifies whether adequate information to establish a verifiable funding level.
 - 2) Items that have significant savings, but costs that push the Cumulative Savings to Investment Ratio below the 1.1 threshold may be eligible for partial funding if:
 - a. The Energy Conservation Measure that has a total cost of implementation above the value that would provide a 1.1 Cumulative Savings to Investment Ratio. The auditor upon request provides the theoretical implementation value (Portion A) that would result in a 1.1 Cumulative Savings to Investment Ratio
 - b. Contingent upon the owners signed agreement to fund Portion B. (the remaining portion to bring the measure to the full implementation value in the contract); the Department may elect to fund the Portion A that meets the Cumulative Savings to Investment Ratio.
 - c. No fraction of a measure, or group of, may be included, performed, or funded.
 - d. The owner and contractor incorporate the results into the Energy Conservation Measure Installer(s)' Contract(s) and agree upon the terms of owner payment.
 - e. The owner and contractor both agree to hold the Department harmless for any resulting disputes over the performance of, or payment for, the work.

Note: There is no requirement for the owner to cost share any measure.

- G. Provide an executed release / Consent to Obtain Energy Usage form from owners and tenants, including all of the following account suppliers information:
 - 1) Electricity
 - 2) Gas, natural or propane
 - 3) Oil or Kerosene



- 4) Water
- 5) Sewage

H. Consent to allow energy usage information to be released by the Utilities to the Department and program participants for the analysis of the following information:

- 1) Historical usage
- 2) Prioritization parameters in the award process
- 3) The program's effectiveness and refinement
- 4) Commission mandated independent program Evaluation, Measurement and Verification (EM&V) monitoring

I. Provide the auditor with firsthand knowledge or information on "Existing conditions" including:

- 1) Building Plans and specifications where available.
- 2) Retrofit plans if any
- 3) Issues with water infiltration
- 4) Issues with freezing water or sprinkler pipes or recurring problems.
- 5) Other known problems, conditions or occurrences.
- 6) Access to all areas of the property and building.
- 7) Upon approval by the Department of the Installer contracts, obtain Building Owner and Installer signatures on the Installer contracts within 10 days of the issuance and execution of the Grant document by the Grantee / Owner and the Department.

E. DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

A. Administer Program

- 1) Procurement of Contractor(s) (excluding Energy Conservation Measure Installers)
- 2) Announcement of funding opportunity
- 3) Application review for eligibility compliance and intake
- 4) Funding

a. RFP to Procure

- i. Project Management
- ii. Energy Auditing and Quality Control Inspection
- iii. Training

b. Property Owner Grant

- i. Energy Conservation Measure Furnish and Install
- ii. Renewable Energy Measure Furnish and install
- iii. Appliance Purchase Contract Furnish and Install

c. Owner Maintenance and Building Operator Training

5) Develop program concept, rules, and guidelines.

B. Prioritization for benefit award; timeliness of application, "first come, first served" based on the following priorities. The Department reserves the right to stop accepting applications at any time after the first 30 days.

- 1) Master Meter is set as a higher priority than mixed metered.
- 2) Properties in the Department Portfolio take precedent over Non Portfolio



C. Award project grant funding

D. Pre-construction and guidance

- 1) Provide guidance and project concept review with the Project Manager and Audit team including critical information gathering requirements to comply with monitoring Evaluation Measurement and Verification requirements to follow.
- 2) Review audits for content and viability.
- 3) Audit review of estimated Savings to investment Ratios for identifying project funding levels.
- 4) Perform a pre-construction conference with the Owner Project Manager and Auditor to determine if owner supplemental funding (Cost Sharing) is possible to bring energy savings measures that do not meet the requisite Savings to Investment Ratio as delineated in number 6.D.F.2 of the “Grantee” section above.
- 5) Review schedule and final audit with Project Manager and Energy Conservation Measure Installer(s) for compliance and viability.
- 6) Issue and execute with the Project Manager a “Proceed to Work Order” that includes the following information:
 - a. The project scope
 - b. All accepted measures and their values.
 - c. Approved project funding values

E. Construction

- 1) Monitor project progress
 - a. Correspond with Owner & Contractor procured through the RFP
 - b. Review work in place for compliance with project scope and Program Standards
 - c. Periodic Quality Assurance Inspections.
 - d. Monthly-Requisition review for payment approval-denial or adjustment.
 - e. Final Quality Assurance Inspections.
 - f. Payment distribution on approved sums. (Secondary in office review and approval is required from the Department’s management.)
 - g. Direct remediation of deficient work as required.
 - h. Review the program actualized energy saving and potential program refinement for future use.

F. TRAINING (ENERGY EFFICIENT TRAINING SUPPLEMENTAL INSTRUCTIONS)

This Pilot ‘Multifamily Housing Energy Efficiency Retrofit ’ program intends to also provide a unique delivery system to better capture the energy savings opportunity from participating buildings by increasing the knowledge, skills, and abilities of the energy conservation participants through real time workforce development training in actual jobsite conditions.

The training component of this program is intended to enhance the knowledge, skills, and abilities of existing energy efficient industry professionals in this rapidly growing and evolving industry while interjecting the programmatic viewpoint.

Minimum Qualifications



Training Services must possess or subcontract with a Certified Building Performance Institute, Inc. Energy Efficient Training entity or individual or designated employee. A list of certified Building Performance Institute, Inc. training providers can be found at http://www.bpi.org/schedules_training.aspx.

Workforce Development training:

- A. Provide a five-day, entry-level Building Science and Tactics prep course for untrained workers; entry level training will provide education for installation workers who have no training in building science to aid in their progress toward certification as a Building Performance Institute Building Analyst Professional. This class is designed to increase the knowledge, skills, and abilities of the Energy Conservation Measure Installer crew personnel in the building science concepts in preparation for testing and as a prerequisite for understanding the systems discussed in the following module on Multifamily Building Analyst Professional. Eligibility for this base level training is limited to uncertified workers or auditors “in training”.
 - 1) Concepts of building science and House as a system
 - 2) Moisture flow
 - a. Relative Humidity (RH), dew point with an emphasis on the need for the auditor to convey to the occupant that if the temperature is lower than the dew point in the home that at some point between the inside surface and outside surface the temperature will be at the dew point causing condensation and the conditions for mold will occur; explain the health and safety as well as the property damages that may result.
 - b. Capillary action
 - c. Diffusion
 - 3) Heat Flow
 - a. Conduction
 - b. Convection
 - c. Radiation
 - 4) Boundaries, thermal and pressure, and the need to align them.
 - 5) Indoor air quality ventilation and VOCs
 - 6) Blower door testing / duct blaster testing
 - a. Infiltration, exfiltration
 - b. Stack effect and the neutral pressure plane.
 - c. Hands on testing with equipment.
 - d. Zonal pressure diagnostics
 - e. Duct leakage testing and reduction strategies
 - 7) Insulation analysis and Grading; quantifying through measurement of each different R-Value area and use of the Building Performance Institute table for degrading insulation with an emphasis on the reasons why the entire area cannot be averaged and why documentation in the report is critical to the Evaluation Measurement and Verification process for Government funded programs (this will be briefly revisited in the multifamily portion of the training.
 - 8) Ventilation
 - a. Constant flow regulators
 - b. Energy star rated fans
 - c. Flow measurement



- d. Using ASHRAE Standards as a guide in existing building energy conservation retrofits to develop a system or to provide an air flow target for acceptable indoor air quality. (mandated code restriction standards in new construction)
 - i. 62.1 (Multifamily buildings with 4 or more stories)
 - ii. 62.2 (Multifamily buildings with 3 or fewer stories or single family dwellings)
- e. Attic passive ventilation including the methods for calculating the required free vent areas for attics with and without vapor barrier.

9) Client education

- a. Comfort and the difference between being warm or cool and being in a state of comfort
- b. Relative Humidity (RH), dew point with an emphasis on the need for the auditor to convey to the occupant that if the temperature is lower than the dew point in the home that at some point between the inside surface and outside surface the temperature will be at the dew point causing condensation and the conditions for mold will occur; explain the health and safety as well as the property damages that may result.
- c. Natural resource conservation.

10) Combustion safety testing

11) Combustion Appliance Zone

- B. Provide Multifamily Building Analyst Training (Training personnel/entities must be Building Performance Institute Training certified five day course in line with Building Performance Institute Multifamily Building Analyst Professional requirements; eligibility for this level training is limited to uncertified workers who have attended the five day training listed in “A” above or Building Performance Institute certified Building Analyst, Envelope and certified Multifamily Building Analyst Professional auditors. Certified Multifamily Building Analyst Professionals (auditors) shall participate in the training. This class will provide the additional training that will bring the entry level class from “A” above up to speed. Energy Conservation Measure Installer company’s personnel currently trained and certified as Building Performance Institute Building Analyst or Envelope Professional an education to aid in acquiring the Multifamily Building Analyst Professional Certification. Include information on Evaluation Measurement and Verification protocol which analyzes the clarity and effectiveness with which program funds are spent.

1) MF Building Stock

2) MF Building Enclosure

- a. Measurement and documentation
- b. windows
- c. Chase ways and bypasses
- d. Attic and crawl spaces
- e. Fire and party walls
- f. Compartmentalization
- g. Guarded and unguarded blower door techniques
- h. Blower door guided air sealing
- i. Ventilation

3) Baseline analysis and benchmarking

- a. Types of charges and their impact

4) Mechanical systems



- a. Heating and cooling
- b. Furnace FHA
- c. Steam boilers
- d. Water boilers
- e. Heat pumps – including PTACs, mini splits, and variable flow systems

- I. SEER,EER COP, HSPF
- II. Commissioning
- III. Distribution systems

- f. Ductwork sealing and insulation

- I. Manual
- II. Pressurized aerosol sealing systems

- g. Diagnostic testing

- I. Duct blaster
- II. Testing airflow
- III. Temperature rise testing
- IV. Economizer control Water or steam piping
- V. pumps,
- VI. valves and variable flow controls
- VII. insulation
- VIII. bleeding and traps – estimating length of run including footage for fittings
- IX. Controls and set points

5) Fuel types and cost/saving

- a. Electric
- b. Gas
- c. Oil

6) Lighting types, color, density, and efficiency

- a. Fixtures
- b. Bulbs
- c. Controls

7) Health and Safety

C. A three-day course in field evaluation, data collection and combustion efficiency and safety testing.
(Eligibility: All Participants).

- 1) Photo identification techniques (sequence) for documenting building area and logging descriptions of photos
- 2) Control identification techniques.
- 3) Identifying areas served by different equipment.
- 4) Ventilation flow testing and analysis.
- 5) Flue analysis and combustion safety and adequate combustion air calculations and strategies
- 6) Health and Safety



D. A two-day Energy Modeling and training class with one of the four software types listed in the RFP
(Eligibility: All Participants)

- 1) Input data collected in the two day field collection training.
- 2) Consolidate output and identify elements of a concise report.
- 3) Calibrating or “truing-up” building models.

Note: the department will provide information in each training class as to how the Evaluation Measurement & Verification is impacted by the Audit initial conditions information or lack thereof”.

